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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/281,809	03/31/1999	BO LIU	197/K38-1142	7664

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EXAMINER
GRENDZYNSKI, MICHAEL E

ART UNIT	PAPER NUMBER
1774	26

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/281,809	Applicant(s) LIU ET AL.	
	Examiner Michael E. Grendzynski	Art Unit 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 January 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5 and 7-18* is/are pending in the application.

4a) Of the above claim(s) *7-12* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5 and 13-18* is/are rejected.

7)☒ Claim(s) *4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. *08/700,999* .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species A (claims 1, 3-5 and 13-18) in Paper No. 25 is acknowledged. Claims 7-14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 25.

Claim Rejections - 35 USC § 103

2. Claims 1, 3, 5, 13-16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto (US 4460637). Applicants claim an ink jet recording material comprising (1) a support and (2) one or more recording layers on the support, wherein the recording layer includes (a) colloidal particles and (b) a water-soluble resin, wherein the recording layer possesses a peak on a pore *diameter* distribution curve only in the range of 2 nm to 100 nm. Miyamoto discloses an ink jet recording sheet comprising a support and one or more ink receptive layers thereon. *See* col. 3, ll 1-7. The support is equivalent to applicants' support. The one or more ink receptive layers, moreover, are equivalent to applicants' one or more ink receptive layers. The layers comprise a binder (e.g., polyvinyl alcohol) and colloidal silica. *See* col. 4, ll 36-68 (disclosing that the primary particles comprise colloidal silica) and col. 7, l 4 (disclosing the use of polyvinyl alcohol, which applicants state on p 20 of the specification as being exemplary of conventional water-soluble binders). Miyamoto further discloses that its receptive layer possesses a peak pore *radius* distribution of two peaks, one peak which falls between 0.2 and 10 μm (200-10,000 nm) and one which falls at 0.05 μm (50 nm). *See* FIG. 3 and col. 6, ll 24-39. Adjusting for diameter (diameter is equal to twice the radius), then Miyamoto discloses an ink-receptive layer having peaks lying in the range of 400-20,000 nm and at 100 nm. Consequently, Miyamoto discloses a receptive medium that possesses

a peak lying only in a range of 2 to 100 nm. It is important to point out that applicants' claim language does not prohibit the existence of other peaks from existing on a pore distribution curve. The claims only require one peak to exist solely within the claimed range. As a result, a prima facie case of obvious is established. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *See In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). *See* also MPEP § 2144.05.

With regard to claim 3, Miyamoto discloses that its receptive layer comprises colloidal silica. *See* col. 4, ll 36-68 (disclosing that the primary particles comprise colloidal silica).

With specific regard to claim 5, Miyamoto discloses that its ink receptive layer comprises colloidal silica and a binder in within the amount ranges claimed by applicants. *See* Example 1 (disclosing 100 parts of silica to 15 parts polyvinyl alcohol (i.e., approximately 7:1)).

With regard to claim 12, Miyamoto discloses that its receptive layer comprises an adhesive and colloidal silica particles. *See* col. 6, ll 64-67 (disclosing an adhesive) and col. 4, ll 36-68 (disclosing that the primary particles comprise colloidal silica).

With specific regard to claims 13 and 18, Miyamoto discloses that the particle size of the colloidal silica contained in its receptive layer falls within applicants' claimed range. *See* col. 5, ll 24-30 (disclosing a particle size of 0.2 μm (200 nm) or below).

With specific regard to claim 15, Miyamoto discloses the use of PVA 117, produced by Kururay Co. *See* Example 1. This is identical to the polyvinyl alcohol used by applicants in the examples (e.g., Example II-1). It is inherent that the PVA possesses the claimed saponification and polymerization values.

With specific regard to claim 16, Miyamoto discloses that its ink receptive layer comprises colloidal silica and a polyvinyl alcohol within the amount ranges claimed by applicants. *See* Example 1 (disclosing 100 parts of silica to 15 parts polyvinyl alcohol (i.e., approximately 7:1)).

With specific regard to claim 18, Miyamoto discloses a particle diameter of the pigment within applicants' claimed range. *See* col. 5, lines 46-54.

3. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto, as applied to claims 1, 3, 5, 13, 15, 16 and 18, above, in further view of either Hosoi (US 5541002) or Abe (US 5372884). Applicants further claim that the one or more recording layers comprise cationic colloidal silica. Miyamoto, while disclosing that its receptive layers comprise colloidal silica, does not specifically disclose the use of cationic colloidal silica. Hosoi teaches that silica used in ink-receptive layers may be made cationic (by coating with cations) in order to improve waterproofing and lightfastness of images placed on the layers. *See* col. 4, ll 36-40. It would have been obvious to one of ordinary skill in the art at the time of the invention to use cationic colloidal silica as the pigment in the Miyamoto medium, motivated by the desire of improving waterproofing and light fastness of images printed on the medium, as taught by Hosoi on col. 4, ll 36-40. Similarly, Abe teaches providing silica with a cationic charge to provide an ink-receiving layer with improved gloss, drying and water resistance properties. *See* Abstract. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a cationic silica as the silica in the Miyamoto layer, motivated by the desire of providing the medium with improved gloss, drying and water resistance properties, as taught by Abe in the Abstract.

4. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto, as applied to claims 1, 3, 5, 13, 15, 16 and 18, above, as further evidenced by the Snowtex Product Information. Applicants limit the claims such that one of the one or more layers comprises the pigments of alumina and acidic colloidal silica. Miyamoto discloses that among the pigments that may be used include alumina and colloidal silica. *See* col. 5, lines 54-67. In Miyamoto Example 1, the use of specific colloidal silica, Snowtex OL, is disclosed. The Snowtex® product Bulletin teaches an inherent property of Snowtex® OL, namely that it is acidic colloidal silica. *See* SNOWTEX product bulletin (disclosing a pH of 2-4).

Allowable Subject Matter

5. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 4 is allowable over the prior art of record. Miyamoto does not teach or suggest an ink jet recording medium comprising a support and at least two ink jet recording layers, wherein both layers possess a peak pore diameter lying in the range of from 2 to 100 nm. Miyamoto specifically teaches away from this combination on col. 5, l 46 through col. 6, l 15. When the Miyamoto medium possesses at least two layers, the outmost layer possesses a peak pore value lying in the range of 400-10,000 nm, which is outside the claimed range.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael E. Grendzynski whose telephone number is 703-305-0593. The examiner can normally be reached on weekdays, from 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 703-308-0449. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2351.

Michael E. Grendzynski
Assistant Examiner
April 7, 2003